EXTRA REVIEW - CIRCLES

Name _____

For each angle, arc, or segment relationship, complete the example by solving for the variable(s). Show all work.

Central angle	Inscribed angle
C O x 70° B	C x O 130° D B

Angles of inscribed quadrilateral	Inscribed angle of a semicircle
$x°$ 110°	$x°$

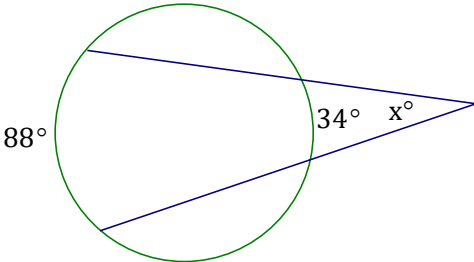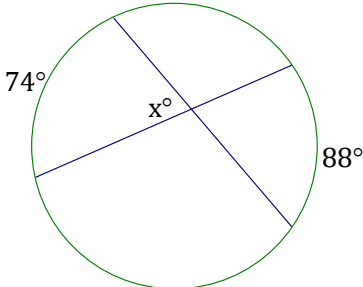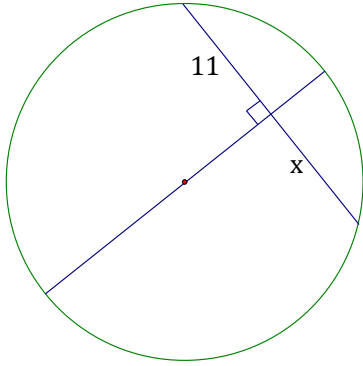| Diameter drawn to tangent at point of tangency	Angle formed by secant/chord drawn to tangent at point of tangency
$x°$	C x A O 100° B

Angle formed by two tangents (outside circle)	Angle formed by secant and tangent (outside circle)
$x°$ 112° $y°$	82° $x°$ 165°

Angle formed by two secants (outside circle)	Angle formed by intersecting chords (inside circle)
88° 34° $x°$	74° $x°$ 88°

Diameter Perpendicular to a Chord	Length of Segments of Intersecting Chords
11 x	10 x 25 15
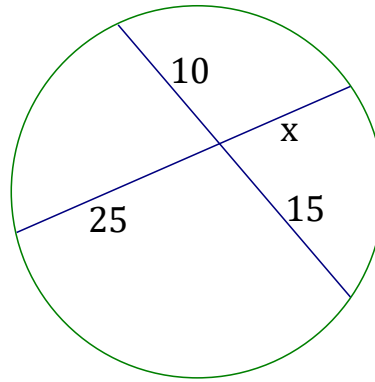
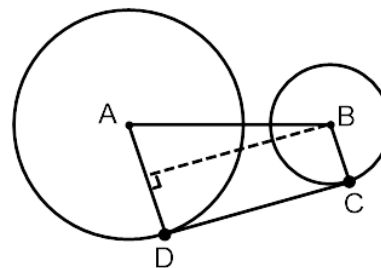| **Length of Intersecting Tangent Segments**	**Length of Segments of Intersecting Tangent & Secant**
23 x	14 10 x
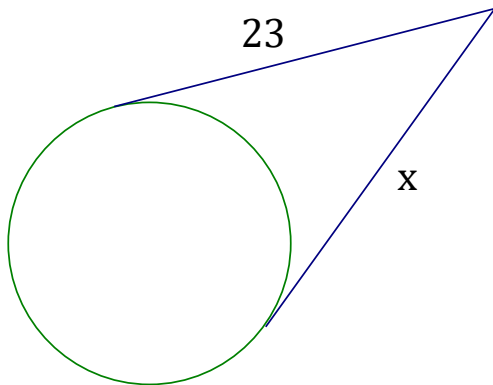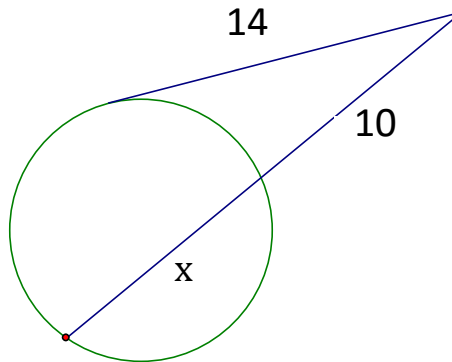
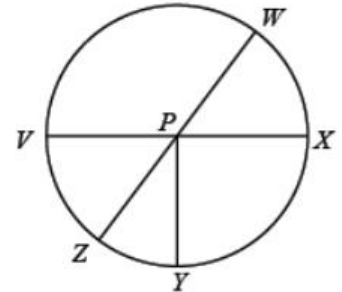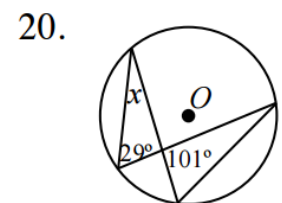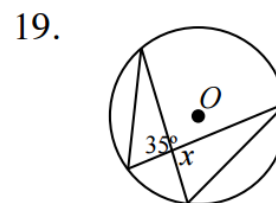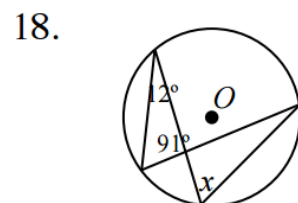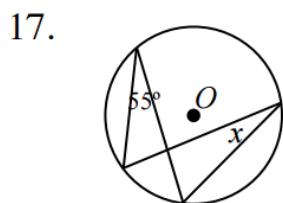| **Length of Segments of Intersecting Secant & Secant**	**Distance Between Centers of Circles With a Line Tangent to Both Circles.**
5 x 6 8	The radius of circle A = 8, the radius of circle B = 3, $\overline{CD}$ is tangent to both circles, at D and C, and $CD = 12$. Find AB. A B C D
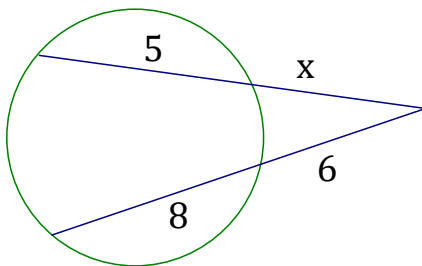
Show all work, neatly.

Find each measure in $\odot P$ if $m\angle WPX = 28°$, $m\angle ZPY = 38°$, and $\overline{WZ}$ and $\overline{XV}$ are diameters.

1. $\overset{\frown}{YZ}$ 2. $\overset{\frown}{WX}$ 3. $\angle VPZ$ 4. $\overset{\frown}{VWX}$

5. $\angle XPY$ 6. $\overset{\frown}{XY}$ 7. $\overset{\frown}{XWY}$ 8. $\overset{\frown}{WZX}$

Calculate the value of x and justify your answer.

9.

$136°$

x

10.

$146°$
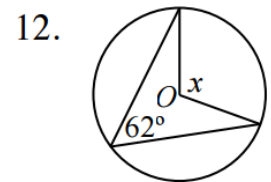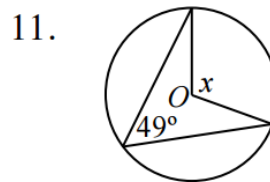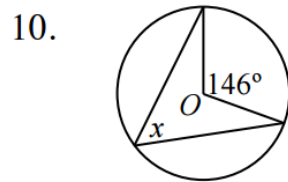
x

11.

x

$49°$

12.

x

$62°$

13.

$100°$

x

14.

$150°$

x

$100°$

15.

$18°$

x

16.

x

$27°$

17.

$55°$

x

18.

$12°$

$91°$

x

19.

$35°$

x

20.

x

$29°$ $101°$
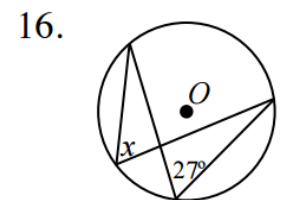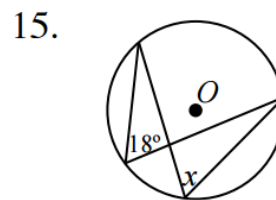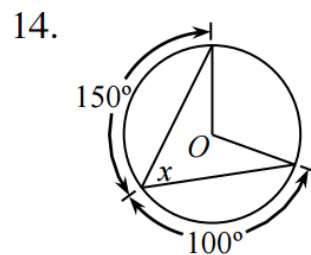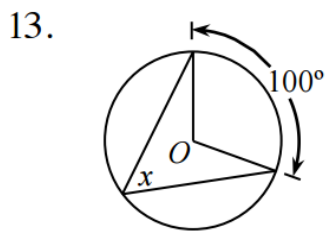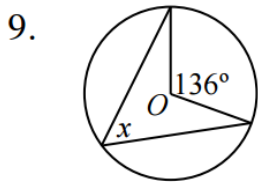
In $\odot O$, $m\widehat{WT} = 86°$ and $m\widehat{EA} = 62°$.
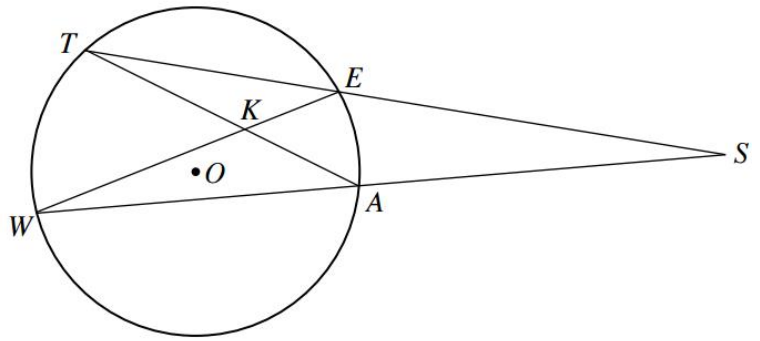
21. Find $m\angle EWA$.

22. Find $m\angle WET$.
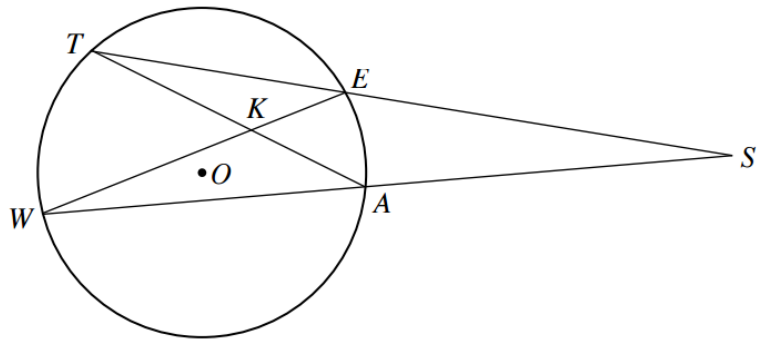
23. Find $m\angle WES$.

24. Find $m\angle WST$.

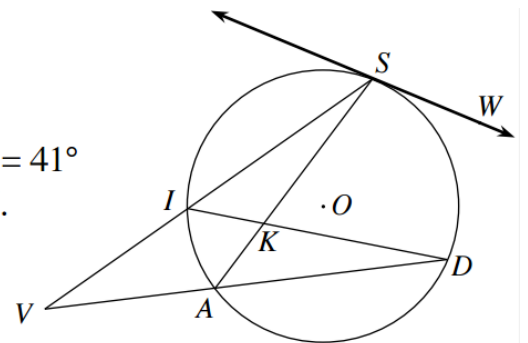In $\odot O$, $m\angle EWA = 36°$ and $m\angle WST = 42°$.

25. Find $m\angle WES$.
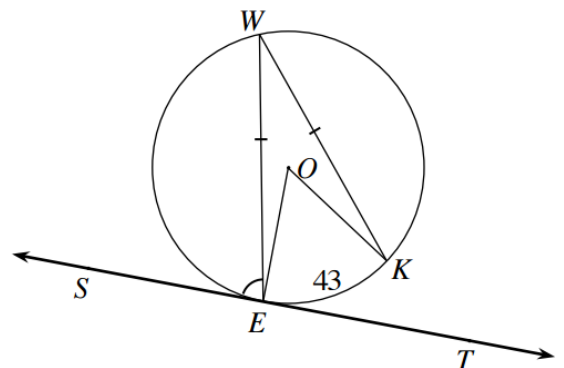
26. Find $m\widehat{TW}$.
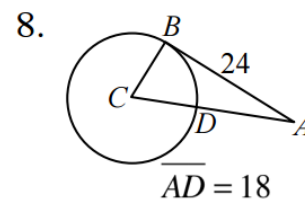
27. Find $m\widehat{EA}$.

28. Find $m\angle TKE$.

29. In the figure at right, $m\widehat{SD} = 92°$, $m\widehat{DA} = 103°$, $m\widehat{AI} = 41°$ and $\overleftrightarrow{SW}$ is tangent to $\odot O$. Find $m\angle AKD$ and $m\angle VAS$.

30. In the figure at right, $m\widehat{EK} = 43°$, $\overline{EW} \cong \overline{KW}$, and $\overrightarrow{ST}$ is tangent to $\odot O$. Find $m\angle WEO$ and $m\angle SEW$.

In each circle, C is the center and $\overline{AB}$ is tangent to the circle point B. Find the area of each circle.

1. $\overline{AC} = 30$

2. $\overline{AC} = 45$
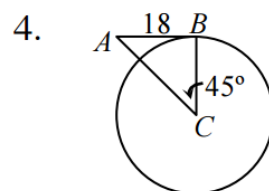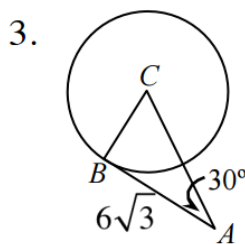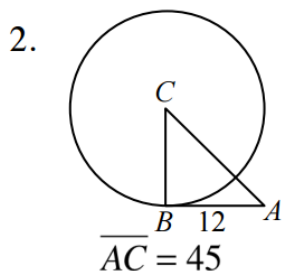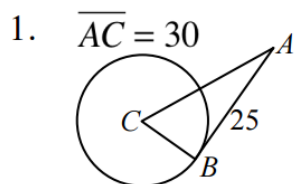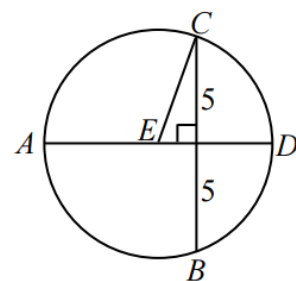
3. $6\sqrt{3}$ $30°$

4. 18 $45°$

5. 12 $\overline{AC} = 16$

6. $\overline{AC} = 86$ 56

7. 28 $\overline{AC} = 90$

8. 24 $\overline{AD} = 18$
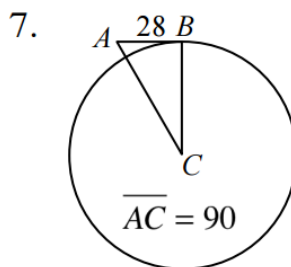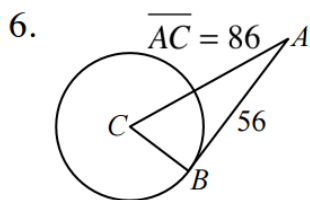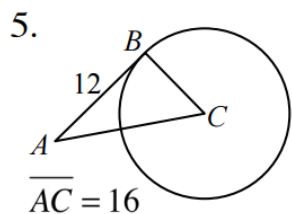
9. In the figure at right, point E is the center and $m\angle CED = 55°$. What is the area of the circle?
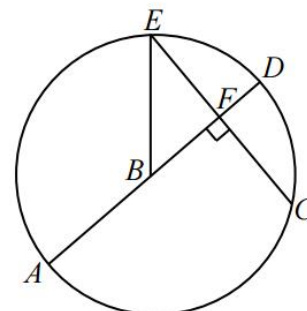
In the following problems, B is the center of the circle.
Find the length of $\overline{BF}$ given the lengths below.
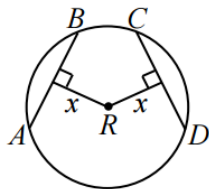
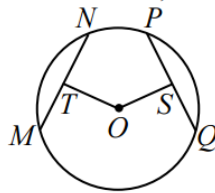10. $EC = 14,\ AB = 16$ 11. $EC = 35,\ AB = 21$

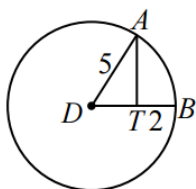12. $FD = 5,\ EF = 10$ 13. $EF = 9,\ FD = 6$

14. In ⊙R, if AB = 2x – 7 and CD = 5x – 22, find x.
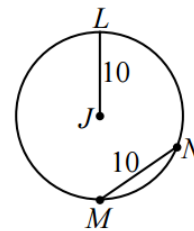
15. In ⊙O, $\overline{MN} \cong \overline{PQ}$, MN = 7x + 13, and PQ = 10x – 8. Find PS.
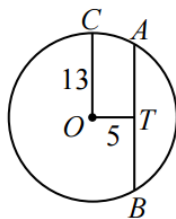
16. In ⊙D, if AD = 5 and TB = 2, find AT.

17. In ⊙J, radius JL and chord MN have lengths of 10 cm. Find the distance from J to $\overline{MN}$.
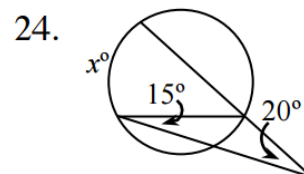
18. In ⊙O, OC = 13 and OT = 5. Find AB.

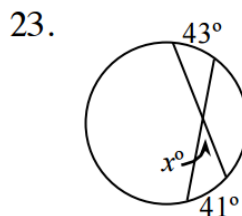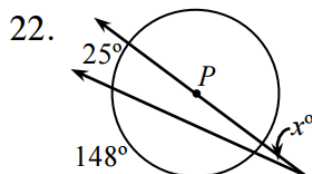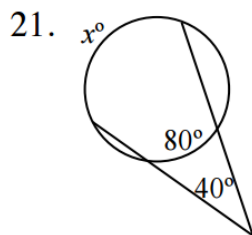19. If $\overline{AC}$ is tangent to circle E and $\overline{EH} \perp \overline{GI}$, is ΔGEH ~ ΔAEB? Prove your answer.
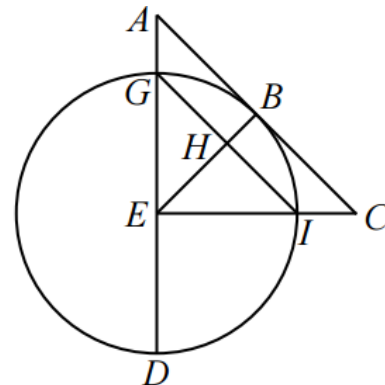
20. If $\overline{EH}$ bisects $\overline{GI}$ and $\overline{AC}$ is tangent to circle E at point B, are $\overline{AC}$ and $\overline{GI}$ parallel? Prove your answer.

Compute the value of x.

21.

22.

23.

24.

In $\odot F$, $m\overarc{AB} = 84°$, $m\overarc{BC} = 38°$, $m\overarc{CD} = 64°$, $m\overarc{DE} = 60°$. Find the measure of each angle and arc.

25. $m\overarc{EA}$

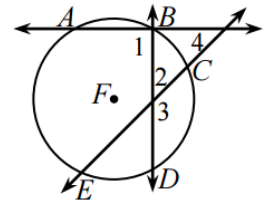26. $m\overarc{AEB}$

27. $m\angle 1$
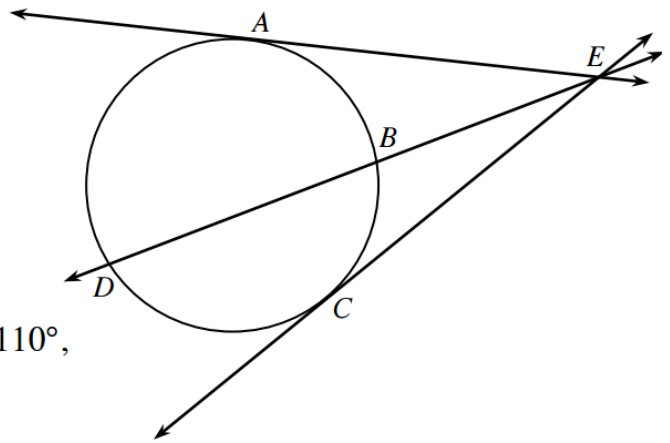
28. $m\angle 2$

29. $m\angle 3$

30. $m\angle 4$
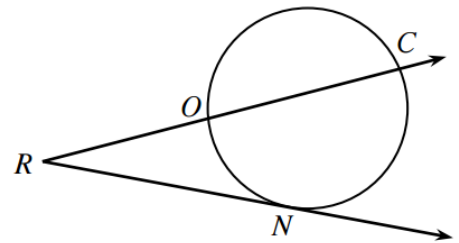
31. If $m\overarc{ADC} = 212°$, what is $m\angle AEC$?

32. If $m\overarc{AB} = 47°$ and $m\angle AED = 47°$, what is $m\overarc{AD}$?

33. If $m\overarc{ADC} = 3 \cdot m\overarc{AC}$ what is $m\angle AEC$?

34. If $m\overarc{AB} = 60°$, $m\overarc{AD} = 130°$, and $m\overarc{DC} = 110°$, what is $m\angle DEC$?

35. If $\overleftrightarrow{RN}$ is a tangent, $RO = 3$, and $RC = 12$, what is the length of $\overline{RN}$?

1. What is the equation of the circle centered at (0, 0) with a radius of 25?

2. What is the equation of the circle centered at the origin with a radius of 7.5?

3. What is the equation of the circle centered at (5, –3) with a radius of 9?

Find the center and the radius of the circle for each equation below.

4. $(x+1)^2 + (y+5)^2 = 16$

6. $(x-3)^2 + y^2 = 64$

5. $x^2 + (y-6)^2 = 36$